

Andrology and fertility

## Successful in vitro fertilization in a 30 years old man with bilateral abdominal cryptorchidism

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### ABSTRACT

Retention of the testis is one of the most common congenital malformation in male infants. The incidence of this disease is 1–2% at 1 year of age. As nonpalpable are reported around 20% of cases and in up to 30% of neonates may affect both sides. For optimal results, orchidopexy should be performed between the ages of six and eighteen months. We presented a rare case of successful in vitro fertilization after laparoscopic Fowler-Stephens orchidopexy in 30 years old man with bilateral abdominal cryptorchidism.

### Introduction

Bilateral abdominal cryptorchidism in the described case was diagnosed at urological examination for primary infertility. It is known that untreated bilateral undescended testes are 100% oligospermic and 75% azoospermic. It should be noted that in cases with bilateral undescended testes after successful treatment, 75% are still oligospermic and 42% are azoospermic.<sup>1</sup> When the disease is diagnosed in the elderly, as it is in our case, the length of testicular vessels embarrass the movement of the testis to the scrotum. Fowler and Stephens find a solution to this problem in 1959.<sup>2</sup> They suggested a division of testicular vessels high from the testis to preserve collateral blood supply. The original technique was an one-stage procedure. In 1984 Ransley et al.<sup>3</sup> proposed the two-stage surgery, expecting the collateral blood supply development after cutting the testicular vessels. A recent meta-analysis evaluating high success rates of 80% for one-stage and up to 85% for two-stage procedures.<sup>4</sup> After the orchidopexy, the only way to create your own generation is TESE (testicular sperm extraction) followed by in vitro fertilization.

### Case report

We present a case of a 30-years old man who seeks medical attention in connection with primary infertility. Initially, the patient was assigned two consecutive enlarged spermograms showing complete absence of

sperm. The following studies were assigned: measurement of serum testosterone and follicle stimulating hormone (FSH) levels, genetic testing, ultrasound examination of the reproductive organs. Testosterone and follicle stimulating hormone levels were within the reference range. Chromosomal analysis excluded the genetic etiology of the condition, and an ultrasound examination revealed a lack of testes in the scrotum and inguinal canals bilaterally. In addition, tumor markers for testicular cancer and MRI were assigned. Tumor markers were normal and MRI showed bilateral intra-abdominal cryptorchidism (Fig. 1). In view of the patient's age, it was decided to perform a two-stage laparoscopic Fowler-Stephens orchidopexy preserving gubernaculum. In the first stage of the operation, the testicular blood supply to the testes was interrupted bilaterally laparoscopically (Fig. 2). Two months later, the second stage of the operation was completed. The peritoneum was cut laterally to the vessels of testises. The incision was extended first upwards, including the border of the inner ring and the surrounding testis and epididymis; then medially along the vas deferens extending near the bladder, with a 1 cm border of the peritoneum on both sides. This peritoneal triangle provides collateral blood supply to the testes after cutting the testicular vessels. The testises and gubernaculum were taken down through the inner ring. For this purpose a groin incision was made and the external oblique aponeurosis was cutted. After three months, we repeated the study of testosterone, the follicle-stimulating hormone and ultrasound examination of the reproductive organs. All

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Fig. 1. MRI showed bilateral intra-abdominal cryptorchidism.

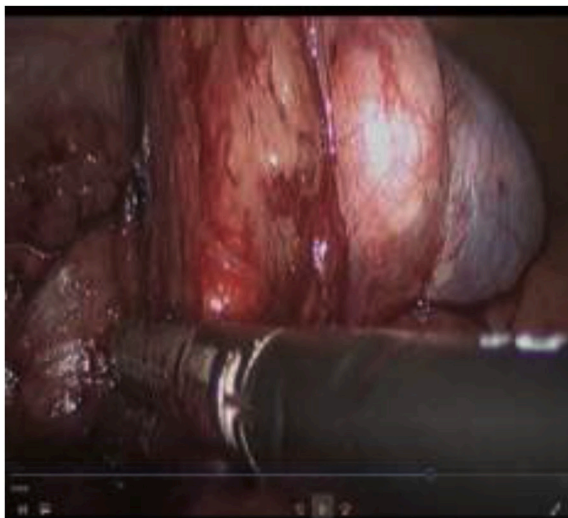


Fig. 2. Testicular blood supply to the testes was interrupted bilaterally.

results were normal, so it was decided to carry out TESE. The procedure makes a small incision of the skin of the scrotum and reaches tunica vaginalis peritonei. The depth of incision of tunica albuginea reaches the testicular subtunicular blood vessels. The extracted tissue is placed in a special medium. Following the intervention, cryopreservation of a  $0.25 \times 10^6$ /ml sperm sample was performed (Fig. 3). After two weeks, an ICSI (intracytoplasmic sperm injection) procedure was performed. After another two weeks, a wife's blood test for pregnancy was performed and the result was positive.

## Discussion

The key to success in the management of bilateral abdominal cryptorchidism relies basically on comprehension testicular blood supply. The collateral blood supply becomes more important for the testis after cutting of testicular artery. Pascual et al.<sup>5</sup> demonstrated with 133-xenon washout technique 80% reduction of testicular blood flow

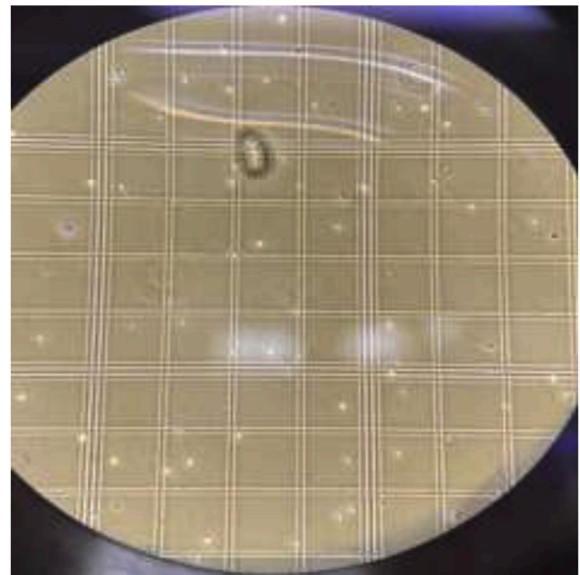


Fig. 3. Sperm extracted.

after division of the artery. Thirty days later it returned to normal levels. Cremasteric artery (a branch of external iliac artery via inferior epigastric artery), inferior vesical artery (a branch of internal iliac artery) and vas deferens artery composed the collateral blood supply of the testis. A wide peritoneal triangle must be prepared during mobilization of testis, epididymis and vas deferens to support collateral blood supply. The advantage of high definition laparoscopy gives an opportunity for magnification and clear image during dissection. The blood supply of the gubernaculum is excellent that is why it must be preserved as opportunity for additional collateral blood supply. In this situation the testis may travel more distally and it is not necessary creating a direct course medial to the area of the inferior epigastric vessels. Until 1992, when the ICSI method was introduced, the only solution to becoming pregnant with a partner with azoospermia was the donor program. Studies show that after successful TESE and ICSI, the chances of successful fertilization can be as high as 70%, regardless of non-obstructive or obstructive azoospermia. The ICSI success rate after testicular extraction is slightly higher in cases of obstructive azoospermia.

## Conclusion

Bilateral abdominal testicular retention, diagnosed in the elderly, is a challenge to modern reproductive medicine. The present case shows that the two-stage Fowler-Stephens procedure, followed by TESE and ICSI gives hope to many men to create a generation.

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